



P.O. Box 5006
Fremont, CA 94537-5006

Environmental Sustainability Commission Agenda and Report – September 15, 2016

General Order of Business

1. Call to Order - 4:30 p.m.
2. Roll Call
3. Written and Oral Communications
4. Approval of Minutes/Agenda Review
5. Staff Presentations and Action Items
6. Adjournment

Order of Discussion

Generally, the order of discussion after introduction of an item by the Chair will include comments and information by staff followed by Environmental Sustainability Commission (ESC) questions or inquiries. An authorized representative or interested citizen may then speak on the item. At the close of public discussion, the item will be considered by the ESC and action taken.

Addressing the Environmental Sustainability Commission

Any person may speak on any item under discussion by the ESC after receiving recognition from the Chair. When addressing the ESC, please state your name and address. In order to insure all persons have the opportunity to speak, a time limit may be set by the Chair for each speaker. In the interest of time, please limit your comments to new material; do not repeat what a prior speaker has said.

Oral Communications

Any person desiring to speak on a matter, which is not scheduled on this agenda, may do so under the Oral Communications section. Please be aware provisions of the California Government Code Section 54954.2(b) prohibit the ESC from taking any immediate action on an item, which does not appear on the agenda, unless it meets stringent requirements. The Chair may limit the length of your presentation.

For agenda copies or information about the City or items scheduled on the Agenda and Report refer to: Community Development Department, P.O. Box 5006, Fremont, CA 94537-5006, phone (510) 494-4557.

Environmental Sustainability Commission:**City Staff**

Hetav Gore, Student Commissioner
Nina Moore, Business Community
John Rennels, Development/Construction Industry
Richard Godfrey, Environmental Organization (Chair)
Shiva Swaminathan, Public At Large
Carolyn Obata, Public At Large
Daniel O'Donnell, Public At Large (Vice Chair)

Dan Schoenholz, Deputy Director,
Community Development
Rachel DiFranco, Sustainability Coordinator,
Community Development
Maria Salinas, Senior Executive Assistant,
Community Development
Trish Cordova, Senior Office Specialist,
Community Development

**AGENDA
FREMONT ENVIRONMENTAL SUSTAINABILITY
COMMISSION (ESC)
SPECIAL MEETING
September 15, 2016, 4:30 p.m.**

**Niles Conference Room, Development Services Center
39550 Liberty Street, Fremont, CA 94538**

- 1. Call to order** (*Chair Godfrey*)
- 2. Roll call and introduction of staff** (5 min.)
- 3. Oral and written communications** (5 min.)
- 4. Approval of minutes** ([August 11, 2016](#)) **and review of agenda** (5 min.)
- 5. Scheduled Items**
 - 5.1 Commission Consideration of recommendation to City Council for Amendments to the 2016 California Building Code related to electric vehicles, energy and water efficiency, and solar energy systems (75 minutes)**

BACKGROUND:

At the August 11, 2016 meeting, the Environmental Sustainability Commission was introduced to “reach code” opportunities that go beyond the minimum standards found in the 2016 California Building Code in relation to electric vehicle charging infrastructure, energy and water efficiency, and rooftop solar energy systems.

Consistent with the Environmental Sustainability Commission’s duties and responsibilities, which include advising the city council on emerging policy

issues related to environmental sustainability, staff is recommending that the Commission recommend that the City Council adopt the following amendments to the Building Code and Energy Code as part of the 2016 Code update:

A. Plug-in Electric Vehicle (PEV) Building Code Recommendation

1. Single-Family Residential New Construction:
 - Require that developers pull the wire and add a termination point for all single-family homes and duplexes, per the CALGreen voluntary requirements
2. Multi-Family Residential and Non-Residential New Construction:
 - Require that 8% of parking spaces in both Multi-Family and Non-Residential meet EV Readiness requirements (consistent with CALGreen Tier 1 for Non-Residential)
 - Require that buildings are equipped with 240 V 40 amp electric circuits capable of supporting electric vehicle service equipment
 - Require that Multi-Family dwellings with 3 to 17 units be held to the same requirements as Multi-Family dwellings over 17 units.

Required Supporting Documentation:

For this amendment, no cost-effectiveness study is required to be filed with the California Energy Commission, but a justification must be filed with the Building Standards Commission. This justification submitted will be the [Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report](#) prepared for the City of Oakland (in collaboration with the City/County of San Francisco and the City of Fremont) by Energy Solutions, July 20, 2016.

B. Cool Roof Energy Code Recommendation

1. All Building Types:
 - Adopt Tier 2 CALGreen requirement for low slope roofs ($\leq 2:12$) only, increasing mandatory levels of solar reflectance (SR) from $\geq .63$ to $\geq .70$, and increasing mandatory levels of thermal emittance (TE) from $\geq .75$ to $\geq .85$.
2. Low-Rise Multi-Family Residential (≤ 3 stories):
 - In addition to low slope roof requirement, adopt Tier 2 CALGreen requirement for steep slope roofs ($> 2:12$), increasing mandatory levels of solar reflectance (SR) from $\geq .20$ to $\geq .34$, and increasing mandatory levels of thermal emittance (TE) from $\geq .75$ to $\geq .85$.

Cost Effectiveness Requirement:

For this measure, a cost-effectiveness study is required to be filed with the California Energy Commission, and a justification must be filed with the Building Standards Commission. The supporting documentation used will be the [Cost-Effectiveness Study for Cool Roof Draft Report for All Climate Zones](#) prepared for PG&E by TRC Solutions, Inc., June 4, 2015. Last modified March 30, 2016.

C. Non-Residential Outdoor Lighting Energy Code Recommendation

Replace Table 140.7-B with Reach Table 140.7-B, reducing the allowable wattage per outdoor area for New Construction and Retrofits (50% or more replacement of luminaires) under the following commercial usage types:

- Primary Entrances to Senior Care Facilities, Police Stations, Hospitals, Fire Stations, and Emergency Vehicle Facilities (IN ADDITION TO BUILDING ENTRY OR EXIT ALLOWANCE OF 35 WATS:
 - Change allowance from 120 watts to 60 watts per application
- Drive Up Windows
 - Change allowance from 125 watts to 60 watts per application
- Outdoor Sales Frontage
 - Change allowance from 36 to 25 watts per linear foot
- Outdoor Sales Lots
 - Change allowance from .758 to .500 watts per square foot area
- Vehicle Service Station Hardscape
 - Change allowance from .308 to .150 watts per square foot area
- Non-sales Canopies and Tunnels
 - Change allowance from .408 to .300 watts per square foot area
- Outdoor Dining
 - Change allowance from .240 to .150 watts per square foot area

Cost Effectiveness Requirement:

For this measure, a cost-effectiveness study is required to be filed with the California Energy Commission, and a justification must be filed with the Building Standards Commission. The supporting documentation used will be the [Energy Cost-Effectiveness Study for Nonresidential Outdoor Lighting Power Allowances](#) prepared for PG&E by Energy Solutions, July 22, 2016.

D. On-Demand Recirculation for Hot Water Distribution Recommendation

1. Single-Family and Multi-Family Residential New Construction with individual storage water heaters:

- Require installation of an on-demand recirculation pump as defined in the CEC Reference Appendices (RA) Section 4.4.13.

-OR-

- Require projects to engineer the plumbing system to meet EPA WaterSense standards for the volume limit for hot water distribution. The water temperature at the farthest fixture from the hot water source must increase a minimum of 10°F within 0.6 gallons (9.6 cups) of flow, resulting in a wait time of approximately 15-30 seconds.

Cost Effectiveness Requirement:

No cost-effectiveness study is required. It is a prescriptive assumption in

the Energy Code for new construction.

E. Mandatory Roof-Mounted Solar Energy System Recommendation

Single-Family Residential New Construction, Multi-Family Residential and Non-Residential New Construction:

- Require installation of roof-mounted solar energy systems, as defined in Fremont Municipal Code (FMC) 18.185, with a minimum total wattage equivalent to 2 times the square footage (2.0 watts per square foot) of the building footprint.
- Exemptions:
 - Single-family residential new construction less than or equal to 700 square feet of floor area
 - Multi-family residential and non-residential construction less than or equal to 2,000 square feet of floor area
 - Secondary dwelling units, as defined in FMC 18.190.480.
 - Parking garages or parking structures
- Considerations:
 - Developers with multiple units in a production subdivision are not required to install solar energy systems on all units so long as the aggregate energy generation requirement within the subdivision is met.
 - If a tract is built in phases, the solar energy generation requirement shall be fulfilled for each phase.
 - Developers shall build solar energy systems on model units, reflective of the products that will be offered to homebuyers.
- Alternatives & Exceptions:
 - In the case that a developer can demonstrate the modeled energy usage for a particular building based on its anticipated occupancy and building use type is less than or equal to the amount of energy that would be produced by the required solar energy system size, the developer may propose a reduced system size that would meet a minimum of 75 percent of that building's modeled energy needs.
 - Renewable energy systems other than roof-mounted solar energy systems, including ground-mounted solar structures, roof-mounted wind turbines, or ground-mounted wind turbines per FMC Chapter 18.185, may be substituted for the solar energy generation requirement for any development.
 - Domestic solar water heating (solar thermal) systems with a minimum collector area of 40 square feet may be substituted for the solar energy generation requirement on a per residential dwelling unit basis for single- and multi-family residential developments.
 - In the case of practical difficulties that limit available roof space due to building location, roof orientation, shading,

building use type, or other conditions, the Building Official may waive or reduce the requirement, and/or impose one of the following alternatives:

- Exceed mandatory energy compliance standards by 15 percent or more.
- Install building management systems (BMS), building automation systems (BAS), and/or on-site energy storage systems that reduce building energy demand from the grid by 15 percent or more.
- Other methods as determined, providing the Building Official finds that the proposed alternative is satisfactory and complies with the intent of the provisions of this section.

Cost Effectiveness Requirement:

For this measure, a cost-effectiveness study is required to be filed with the California Energy Commission, and a justification must be filed with the Building Standards Commission. The justification submitted will be the [Cost-Effectiveness of Rooftop Photovoltaic Systems for Consideration in California's Building Energy Efficiency Standards](#) prepared for the CEC by Energy and Environmental Economics, Inc. (E3), May 2013. (CEC Publication Number: CEC-400-2013-005-D). A cost-effectiveness study currently being completed by Build-It-Green may also be used as justification if it is completed prior to the submittal of the proposed amendment to the CEC and BSC.

RECOMMENDATION:

Staff recommends that the Environmental Sustainability Commission recommend that City Council adopt amendments to the 2016 Building and Energy Codes related to electric vehicles, energy and water efficiency, and solar photovoltaics as detailed above.

5.2 Staff Updates (10 minutes)

Staff will provide updates on various related City sustainability efforts, including:

- Alameda County Community Choice Energy
- Bay Area SunShares Program

5.3 Commissioner Announcements (10 minutes)

This is an opportunity for Commission members to make announcements on matters of interest to the Commission as a whole.

6. Adjourn